

Scavenging by a Bobcat, *Lynx rufus*

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There are few available reports of scavenging (carrion foraging) by Bobcats (*Lynx rufus*). We recovered the remains of a Gray Squirrel (*Sciurus carolinensis*) from the stomach of a road-killed female Bobcat in Dutchess County, New York. The presence of Blow Fly eggs on the squirrel remains indicate that it was consumed as carrion. To our knowledge this is the third confirmed instance of scavenging by a Bobcat.

Key Words: Bobcat, *Lynx rufus*, scavenging, carrion, diet, food habits, blow fly, Calliporidae.

Scavenging (carrion foraging) by terrestrial vertebrates is more prevalent than generally recognized, and rather than a curiosity of animal behavior it is an ecological process that must be accounted for (DeVault et al. 2003). Dietary studies of carnivores usually rely on analyses of stomach contents and scats; however, because these methodologies can reveal the composition of the diet, but not the foraging mode, most scavenging events probably go undetected (DeVault and Rhodes 2002). Given the difficulties inherent in detecting scavenging behavior, and the need to identify scavengers in order to understand scavenging as a trophic pathway (DeVault and Rhodes 2002; Selva and Fortuna 2007), field observations of scavenging are especially noteworthy (Logan and Montero 2009).

The Bobcat (*Lynx rufus*) is a medium-sized felid widely distributed in North America, occurring from southern Canada to central Mexico, and throughout most of the United States (Larivière and Walton 1997). Bobcats are obligate carnivores and their food habits have been well-studied in much of this geographic range (Delibes et al. 1997; Anderson and Lovallo 2003). In most areas the diet consists principally of lagomorphs, but sciurids, other rodents, and larger mammals such as ungulates are also consumed (Anderson and Lovallo 2003; Hansen 2007). Bobcats are adept predators that generally kill living prey; however,

scavenging is known to occur, although there are few reports of this behavior in the literature. Fritts and Sealander (1978) report that a Bobcat was collected after feeding on a road-killed White-tailed Deer (*Odocoileus virginianus*), and others (Rollings 1945; Pollack 1951; Lowery 1974) suggest that most deer eaten by Bobcats are consumed as carrion, which becomes available when animals are lost by hunters or die of starvation during the winter. Beaver (*Castor canadensis*) carcasses are used to lure Bobcats into traps (Hawbaker 1974), and DeVault and Rhodes (2002) photographed a Bobcat consuming a small mammal carcass during experimental trials designed to identify vertebrate scavengers. Here we provide an additional record of scavenging by a Bobcat.

On 20 July 2010 (2330 hours) one of the authors (GTS) recovered a road-killed female Bobcat on State Highway 44 near the intersection with South Road in Washington Township, Dutchess County, New York (41°46'818"N; 73°44'942"W). The carcass was not present when GTS passed the site at 2300 hours; therefore the Bobcat had been dead less than 30 minutes when it was found. We measured (following Hall 1962; total length = 770 mm; tail length = 125 mm; rear-foot length = 155 mm; ear = 60 mm) and skinned the Bobcat, which was deposited in the Campbell Museum, Clemson University, Clemson, South Carolina (CUSC

4243). The stomach of the Bobcat contained the remains of a recently ingested Gray Squirrel (*Sciurus carolinensis*). Numerous Blow Fly (Calliphoridae) eggs evident in the fur of the squirrel (Figure 1) indicate that it was consumed as carrion rather than killed as prey. Because Blow Flies usually oviposit on carrion within a few hours of death, and eggs hatch 24 to 36 hours after being deposited (Smith 1986), the squirrel carcass was probably 1-2 days old when consumed by the Bobcat.

To our knowledge, this observation constitutes only the third confirmed instance of scavenging by a Bobcat (see also Fritts and Sealander 1978; DeVault and Rhodes 2002). Scavenging likely occurs more frequently than suggested by the few available reports; however, the limitations of traditional dietary studies mean that except in rare instances such as this one, scavenging cannot be distinguished from predation. Although Bobcats probably consume most prey after capturing and killing it, opportunistic scavenging is not unexpected when carrion is available, and can make important energetic contributions to the diet (Bauer et al. 2005). Furthermore, scavenging is beneficial from the standpoint of individual fitness because consuming carrion requires a minimal energetic investment in comparison to hunting and killing prey, and the risk of injury from prey is eliminated (DeVault and Rhodes 2002; Bauer et al. 2005). Of course carrion consumption also entails certain costs; most notably scavengers must compete with decomposers, and risk exposure to toxins and disease-causing microbes in carrion (Schaller and Lowther 1969; DeVault et al. 2003; Shivik 2006). Because carrion is an ephemeral resource that generally occurs at low densities, it is unlikely that Bobcats or other terrestrial carnivores could meet their energetic requirements solely by scavenging (DeVault et al. 2003). Indeed, the only known obligate vertebrate scavengers are Old and New World vultures, which are specialized for low-energy soaring flight and can search large areas for carrion far more efficiently than mammalian scavengers (DeVault et al. 2003; Ruxton and Houston 2004; Shivik 2006).

In addition to Bobcats, scavenging behavior has been documented among other small and large felids. Both Canada Lynx (*Lynx canadensis*) and European Lynx (*L. lynx*) are known to scavenge ungulate carcasses (Anderson and Lovallo 2003; Selva and Fortuna 2007). In one study of Canada Lynx, ungulate carrion comprised 17% of the diet (Nellis and Keith 1968). Scavenging by African Lions (*Panthera leo*) is common (Schaller 1972). According to Perry (1965), Tigers (*Panthera tigris*) are "habitual carrion eaters", that frequently scavenged human bodies from World War II battlefields in India and Burma. Similarly, Bazé (1957) observed Tigers consuming decomposing Asian Elephants (*Elephas maximus*) and Water Buffalo (*Bubalus bubalis*). Scavenging by Puma (*Puma concolor*) is well documented (Robinette et al. 1959; Ackerman et al.



FIGURE 1. Gray Squirrel (*Sciurus carolinensis*) remains recovered from the stomach of a road-killed Bobcat (*Lynx rufus*) in Dutchess County, New York (20 July 2010). Note the abundant Blow Fly (Calliphoridae) eggs. Photo by Gerard T. Salmon.

1984; Logan and Sweaner 2001). In a radio telemetry study, Bauer et al. (2005) found that Puma scavenged 43.5% of monitored Mule Deer (*Odocoileus hemionus*) carcasses ranging from "frozen and fresh to rotting and maggot-infested". Indeed it is likely that most, if not all felids will consume carrion if available (Kitchener 1991), although additional field observations and experimental studies are required for confirmation.

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